TM08-08.001 Plasma Selection Policy

APPLICABILITY

Compliance with this document is required by all Alberta Precision Laboratories Ltd. (APL) employees, medical staff, students, and other persons acting on behalf of APL (including contracted service providers as necessary).

PURPOSE

This policy provides direction on determining the appropriateness of a plasma order for the purpose of screening, preparing, and selecting the most appropriate product to fill the order in alignment with the AHS *Transfusion of Blood Components and Blood Products Policy PS-59*.

BACKGROUND

Plasma is a vital and limited resource. Inappropriate transfusion practices put a strain on Canada's blood supply and expose patients to potential harm. The role of APL personnel in identifying potentially inappropriate transfusions and referring the ordering physician to a Transfusion Medicine (TM) physician are important and effective ways of supporting appropriate transfusion practices.

DEFINITIONS

Bleeding	A patient who is losing blood volume internally or externally.
Blood products	The therapeutic parts of blood used for transfusion, namely, packed red blood cells, plasma, and platelets. Note that these are referred to as blood components in Canadian standards and in the AHS Transfusion of Blood Components and Products Policy and Procedure. The decision to use the Blood Products terminology for laboratory documents is based on WellSky terminology.
IgA deficient product	A blood product collected from an IgA deficient donor or processed to remove IgA.
Prothrombin complex concentrate (PCC)	A derivative product containing coagulation factors II, VII, IX, X, and Protein C and S. Note: Octaplex® and Beriplex® are the two PCC products available in Alberta.
Solvent detergent plasma (SD Plasma)	Standardized plasma units manufactured from pools of human plasma. Note: Octaplasma® is the brand of SD plasma currently available in Canada

Transfusion Medicine physician	A physician or pathologist with responsibility for Transfusion Medicine in their sector or zone.
Transfusion parameters	A laboratory value or other criteria at which a specific patient is approved for transfusion by the TM physician.
Unmatched	Blood products issued prior to the completion of pretransfusion testing.

RESPONSIBILITY

TM personnel responsibilities include, but are not limited to:

- Timely review of plasma orders based on urgency of order and site schedule of activities.
- Identifying orders that appear to be inappropriate.
- Referring the ordering physician to the TM physician when an order appears to be inappropriate.
- Contacting the TM physician when the appropriate product selection for a patient is unclear.
- Updating patient's history / registry file when special requirements are identified for a patient.

TM physicians are responsible for:

- Consulting with the ordering prescriber when a plasma order appears to be inappropriate.
- Providing guidance to TM personnel on appropriate plasma selection.

POLICY

Deviations from this policy require documented approval from the TM physician.

A pretransfusion sample should be collected in accordance with Section 2 prior to the transfusion of plasma whenever possible.

Included in this policy is:

1. Plasma Transfusion Indications and Appropriateness

1.1. Clinical Indications

- Patients who are bleeding (see Section 1.3) or undergoing invasive procedures who require replacement of multiple plasma coagulation factors.
- Patients on warfarin who are bleeding or require an invasive procedure before vitamin K could reverse the warfarin effect, and when prothrombin complex concentrate (PCC) is not available or is contraindicated.
- Patients with deficiencies of coagulation factors where there is no specific factor concentrate or more appropriate alternative therapy is available (e.g., Factor V deficiency).
- Preparation of reconstituted whole blood for neonatal exchange transfusion.
- Patients undergoing therapeutic plasma exchange requiring fluid replacement.

1.2. Appropriateness (Screening)

- Plasma should not be transfused to correct a mildly elevated international normalized ratio (INR less than 1.8) or activated partial thromboplastin time (aPTT).
- Plasma should not be transfused for non-emergent reversal of warfarin which can be treated with vitamin K or by discontinuing the warfarin therapy.
- Patients who require urgent warfarin reversal with serious bleeding or who require urgent surgery should only receive plasma if PCC is not available or contraindicated.
- TM personnel must contact the TM physician when an order for plasma appears to be clinically inappropriate, or when screening criteria are not met.
- If, due to a specific clinical indication, a patient is approved by the TM physician for plasma transfusion that does not align with established screening criteria, their approved Transfusion parameters must be documented in the laboratory information system (LIS).

1.3. Bleeding

- Patients who are bleeding or in urgent need of transfusion shall not be denied plasma, nor shall plasma be unnecessarily delayed.
- A patient is considered to be bleeding if:
  - The massive hemorrhage protocol has been activated;
  - The patient is in the operating room (OR); and/or
  - The clinical indication is suggestive of bleeding, including but not limited to:
    - Blood loss
    - Hematoma
    - Hematuria
    - Hematemesis
    - Hemolysis
    - Melena
    - Purpura
    - “suspicious for bleeding”
    - “HGB trending down”
    - HGB has decreased by at least 10 g/L within the last 24 hours

2. Plasma Pretransfusion Testing Requirements

- Group specific plasma requires one blood group in the LIS, this includes uploaded historical groups.
- Plasma should be ABO compatible with the recipient’s red blood cells, when possible, but does not require serological crossmatching.
- Cord blood ABORH is not considered a valid testing result for selection of plasma.
- The RhD type is not required for transfusion of plasma.
- A Transfusion Service Identification Number (TSIN) is not required for the transfusion of plasma, however, if the patient is wearing a TSIN from a current type and screen, then the TSIN must be confirmed at the time of issue and transfusion.

3. Plasma Selection

3.1. Unmatched Plasma are Selected When:

- The authorized prescriber has assessed the risks versus benefits and determined that the clinical situation is sufficiently urgent to justify transfusion prior to the completion of ABO testing. The authorized prescriber is responsible for documenting this risk assessment (attestation) on the patient’s chart.
- The required ABO testing is incomplete. See Section 2. Testing Requirements for Plasma.

3.2. Plasma Units for Unmatched Use

- Must be group AB or low titre A to ensure compatibility with the patient's red blood cells. If group AB plasma or low titre A is unavailable, consult the TM physician.
- Must be clearly marked on the tag indicating there is no historical blood group in LIS. (e.g., Unmatched sticker, stamp, printed, written)
- Verbal orders for unmatched or emergency issue components shall be documented by TM in the LIS or applicable manual record, and by the authorized prescriber on the patient chart.

3.3. ABO Compatible Plasma

- ABO compatible plasma should be selected when patient meets Pretransfusion Testing Requirements. See Section 2.
- ABO identical plasma units are the first units of choice.
- ABO compatible, group specific plasma units may be selected when:
  - Appropriate ABO identical plasma units are not available (e.g., patient requires IgA deficient plasma or there is a shortage of ABO identical units).
  - Compatible units are approaching expiry and are selected to avoid discard of the unit.
  - When directed by the TM physician, in response to a potential ABO incompatible transplant.
- Any patient who has received ABO non-identical plasma should be given ABO identical plasma as soon as appropriate units are available, product demand drops to manageable levels or ABO identical stocks increase significantly.
- Refer toT M08-08.004 Plasma Selection Chart for order of preference when switching ABO groups.

4. Considerations for Inventory Management

- It is generally best practice to select units that are closest to expiry.
- In shortage situations, guidance from the Provincial Emergency Blood Management Committee (PEBMC) supersedes guidance in this policy.
- Sites may set aside specific plasma units (e.g., group AB plasma) to ensure their availability in urgent situations or for when a patient requires those specific units.
  - Units approaching expiry may be issued to another patient to avoid discard of the unit.

Table 1. Inventory Management Considerations

Plasma Unit	Inventory Management Considerations
AB	Primarily reserved for group AB patients and patients whose ABO group is unknown.
A, B, O	Units approaching expiry may be issued to a compatible patient in order to avoid discard of the unit.
Low Titre group A	Primarily reserved for group A patients and patients whose ABO group is unknown.
Split or divided	Primarily reserved for neonates, pediatrics, and other patients requiring low volume plasma transfusions.

5. Special Clinical Indications

- Plasma units shall be provided for patients with the following special clinical indications, whenever possible as per LIS patient file/patient registry for new requests consult TM physicians

Table 2. Plasma Selection for Special Clinical Indications

Clinical indication	If the patient…	Then plasma requirement
Confirmed IgA deficiency • IgA: **undetectable** • Anti-IgA: **positive**	Has history of reactions	IgA deficient plasma
	Has no history of reactions	Regular products under close monitoring.

REFERENCES

Canadian Blood Services. Circular of Information for the Use of Human Blood Components. Plasma Components. January 2021. [Accessed 19Nov2021] https://www.blood.ca/sites/default/files/1000104990_2021-10-18.pdf

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PS-59 Transfusion of Blood Components and Blood Products. Alberta Health Services. Feb 15, 2022 https://extranet.ahsnet.ca/teams/policydocuments/1/clp-prov-transfusion-blood-product-policy-ps-59.pdf

RELATED DOCUMENTS

TM02-02.004 Processing Unmatched Plasma Orders
TM08-04.002 IgA Deficient Product Approval Criteria
TM08-08.002 Processing Plasma Orders – Stocking Sites
TM08-08.003 Processing Plasma Orders – Non-Stocking Sites
TM08-08.004 Plasma Selection Chart

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